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Omitted in Contents

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The undersigned special committees were appointed to consider the extension of the "Decimal System" to Weights and Measures and to report upon the practicability of the plan proposed by Mr. J. H. Felton, also as to the propriety of memorializing Congress for the attainment of this object; and they respectfully submit the following

REPORT:

That in their belief, the first great step in furtherance of the resolutions of the American Geographical and Statistical Society and of the Chamber of Commerce, to secure by action of the Federal Government, a uniform system of Weight and Measure upon the decimal principle requires their joint action, and they have so proceeded, and beg to present their report as a joint Committee.

In fulfilment of the instructions, therefore, of the Chamber and Society, we have given the plan of Mr. Felton, our careful examination—the more so, as his veteran services of *seventeen* years in this, to him unfruitful field, render his experience and knowledge of great value.

The plan proposed by Mr. Felton presents many very excellent features; its basis is purely decimal, and therefore not a new principle among us, since the general adoption of our decimal currency. It seems not a little remarkable, that a subject so importat to commerce, and the convenience of man, should have been allowed to slumber for so long a period. It may be safely asserted, that for more than a century, the subject of a complete and uniform system of Weight, Measure and Coin, has engaged the attention of philosophers, statesmen and econo-

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mists; but it was left for our country to be the pioneers in this great reform, by the introduction of our decimal currency, in the year 1786, admitted to be the best in the world. It may be altered, but it cannot be improved.

With the advancement of Science, the spread of philosophical ideas, the prevalence of comprehensive views, and the vast increase of commercial transactions, the inconvenient and irrational nature of a heterogenous system of *magnitudinal* quantity, has from time to time led to the suggestion of various methods for the construction of a regular system, founded on some uniform mathematical principle; indeed history tells us, that from a remote period, legislators and men of science, dissatisfied with the variable nature of the units, from which the measures of commerce were calculated, such as the weight and dimensions of certain esculent grains, and at a later period, the numerical aggregates of these, represented by *material standards*, still desired to meet with some object invariable in nature, easy of access, and suitable in other respects for a leading *unit* of measure, from which other units might be derived.

A natural standard that would remain invariable under all circumstances, is without doubt highly desirable, and would give that exactness and permanency to the system which absolute perfection requires. Whether such can be obtained, your committee would leave to those whose pursuits render them more competent to decide. In any event, however, it seems practicable to establish a decimal system, the exact relations of the units of which may be readily adjusted to an arbitrary or philosophical standard, should such be hereafter obtained. Many years however may yet elapse before this question of invariability can be decided, and even should the decision then be adverse, so great is the importance of a scientific basis, that the problem would ever Phœnix-like rise anew and present itself for new years of experiment, as science enlarges her resources and obtains more exact instruments for the solution of difficulties. If this is therefore made a preliminary question to the adoption of a uniform system of weight, measure and coin, we shall be obliged to wait for an indefinite period for the commencement of that reform which is now so greatly needed, and of all the principles that have been thus

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proposed as the basis of such a system, none has met with such universal approbation as the decimal.

This approbation is obviously founded on the exact accordance of such a plan of denominate number, with the admirable decimal notation which is the basis of our system of abstract numbers, and any method by which our calculations of abstract and denominate quantities can be perfectly harmonized must certainly be highly desirable.

In no nation in the world can such a system be more easily introduced than in this country. If those who would be expected to use it are not prepared by education and general intelligence to perceive its superiority over the miscellaneous systems already in operation, whatever might be the abstract merits of such a plan, any attempt at its introduction would fail in producing the desired results. But better hopes may be confidently entertained of the American people. Nowhere else can be found so much general intelligence, such freedom from prejudice, such readiness to appreciate and adopt any idea or invention which is plainly of practical utility ; *no better evidence can be afforded of this than the readiness with which the requirements of the recent enactment of Congress, with respect to the Spanish coin, was complied with.* The necessity of abolishing its use had been long felt by the people. Hence the law of Congress produced no trouble, for it was met with a cheerful willingness, as being a means to a desirable end. *Besides*, the introduction and universal approval of a decimal *currency* has not only been a *test* of this readiness for improvement, but has also fully prepared the way for the cordial approval of an extention of the same principle to weight and measure, in order to complete and harmonize the system. Already have we even *anticipated* such a change in the modificatian which we have forced upon the hundred weight and the ton, in the state of very many articles by the hundred or the thousand, and in the estimation of land by acres and hundredths.

Our decimal currency is at present an anomaly in our tables, but it is no longer an experiment. It is a remarkable fact that no people have ever abandoned the decimal system when once adopted—whatever may have been the difficulties from prejudice and ignorance with which its supporters has had to

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contend during its introduction. Certainly, nothing could now induce the people of this country to return to the irregular method of monetary computation once universal among us. Without doubt, the selection of this department for the trial of the principle was a wise one; perhaps had more been attempted, the whole would have failed. Yet it is strange that so long a time has elapsed since its introduction, without the completion of the system. The regulation of the currency took place in 1786; and already in 1790, in his admirable report to the House of Representatives on the subject, Mr. Jefferson felt justified in saying "that it had obtained general approbation at home and abroad," and he suggests "the extension of a like improvement to our weights and measures, that they also may be arranged in a decimal ratio." He further says, that "the facility which this would introduce into the vulgar arithmetic would, unquestionably, be soon and sensibly felt by the whole mass of the people, who would thereby be enabled to compute for themselves whatever they should have occasion to buy, to sell or to measure, which the present complicated and difficult ratios place beyond their computation for the most part."

It appears, however, that Congress did not think proper to act at that time upon the suggestion; perhaps, because the currency act was then recent, its coins being not yet issued at the date of his report. And since then the difficulties which have beset the general adoption of the new French system, and the fact of the best talent of Great Britain being employed in endeavoring to secure a scientific standard, may have combined to retard the final completion of our own system.

Long established habit has reconciled people to the common methods of computation. Indeed, the great majority scarcely know of any other. There is ever more or less unwillingness to abandon that which time has rendered comparatively easy, and custom has sanctioned, notwithstanding inherent defects. Even among those who may be classed as thinking people, there is a disinclination to exchange old and familiar methods, for new ones with which they are not practically familiar.

Because a thing has long been done in a certain way, there is apt to grow up an impression that *that* is the best, if not the only way. If this question concerned only those who are *now* engaged in commercial transactions, or have use for the ordinary computations incident to domestic life, it might, perhaps, be advisable to permit the plan already so firmly established to remain unaltered. But it is very far otherwise. This question not only deeply concerns ourselves, but the youth now in our schools, who shall soon stand in our stead, and the yet unborn millions who will crowd this land of fertility and industry, ages after we shall have passed from this stage of our existence. Each one of these must acquire for himself, at least, a certain necessary amount of mathematical knowledge; and a vast aggregate of the precious seed-time of life has been, and is yet spent in the acquisition of an ordinary knowledge of our unnecessarily complex quantities. Surely, the philanthropist, the economist, and the patriot must feel the importance of employing this great amount of time to better purpose. The opinion of Sir John Herschell, when examined in relation to this subject before a committee of the British Parliament, is well worthy of the most serious consideration. He says: "The decimal system being once introduced, the rules of 'Compound Arithmetic,' 'Reduction' and 'Practice' would no longer be taught in our schools. The relief thus afforded to both teacher and scholar would be immense, the four essential rules of arithmetic would be better acquired, and the drudgery spared; and the time thus saved for the acquisition of real knowledge would *tell* upon the education of every individual in every class of society. All statistical, revenue and general commercial computations would be facilitated, and the acquisition of clear views of the mutual relations of prices, import and export duties, &c., very greatly so, by disencumbering the elements of computation of the infinite complexity of denomination under which they are now presented."

Says Professor Dr. Morgan: "Just when the student should begin to *apply* the principles of decimal calculation which are the basis of arithmetic, he is forced in a great measure to abandon them, and proceed to another system, which creates confusion, causes him to forget what he has learned, and makes the subsequent use of arithmetic much more difficult than is necessary."

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It seems to be the general opinion that no system, whatever, could meet with acceptance if it involved a wide departure from the *present well known* quantities. The pound avoirdupois, the gallon, the hundred weight, the foot, the chain, the yard and the acre, for instance, are in such constant use, and have become so necessary, that any attempt to dispense with their use, or to give them different names, or to assign to them quantities materially different from their present ones, could not but fail.

In the introduction of the Federal currency respect was had to this very point, in the adoption of the well known Spanish Dollar as the unit, and so sub-dividing it that all of the old subdivisions might be exactly expressed in terms of the new ones. In the establishment of a new system, therefore, it seems desirable to retain the above named units, and perhaps some few others, as far as possible unaltered. Mr. Felton's plan does this in a remarkable degree: all these essential quantities are retained under their present names. Their multiples and submultiples being less used, have, in many cases, their quantities slightly changed in order to coincide with the decimal, while they retain the names and the order of the present system.

The gallon of distilled water weighs 10 pounds, and most other common fluids, as milk, ale, beer, wine, refined oils, &c., do not differ very materially in weight from water. Owing to this relation of the gallon to the pound, fluid contents may often be ascertained more readily and accurately by weighing than by gauging. Mr. F. has fully availed himself of this fact, and has very ingeniously established a continuous relation between the proposed multiple and sub-multiples of the pound and those of the gallon, so as to render them convertible.

We might here remark, that England, in 1834, in her "Uniformity Act," by which the old wine, beer, and dry measure were superseded by the imperial standard—a step in the right direction. She also acknowledged this relation of the gallon to weight, and rendered legal the gallon of 10 pounds of distilled water.

Mr. Felton has also thoroughly set forth the simple and beneficial effects which would be produced by the harmony of our weights and measures with our currency; and has fairly proved the truth of his assertion, "that we are defrauded of more than three-fourths of the advantages of our decimal system of money by a want of corresponding scales of weight and measure." Upon the whole, his plan seems nearer perfection than any other that has yet been suggested; hence your committee, have not hesitated to draw largely upon his labors, and to embody in the "scales" and "tables" about to be presented, the leading features of his plan.

We are fully aware of the danger of disturbing existing arrangements, by the introduction of innovations, however *specious*, should they have the most remote tendency to intercept the current of business. We crave indulgence therefore, in our attempt to show by clear, [and not unnecessary detail, that all fears upon this point are groundless.

To *ensure success*, we must present to the merchant, tradesman and dealer, such arguments, explanations, and tables, as will render our plan easily understood, and we trust acceptable. In other words, the public mind must be well prepared for the change, before it can be established by legal enactment.

The decimal scale of notation was introduced into Europe by the Crusaders, who brought it from Asia, but, notwithstanding its utility, it made but slow progress in supplanting the Roman numerals.

One remarkable peculiarity of the system is the latent character of its advantage—they remained undeveloped for ages throughout all Europe, and the properties of the decimal scale are not noticed to the extent that might have been expected, even in the works of mathematicians of established reputation. Hence we find the Asiatics generally, and the Chinese in particular, have stolen a march upon the Europeans. The subject cannot be said to have been fairly placed before the world, till the latter years of the last century, when the savants of France first promulgated their project of applying the system to the entire commerce of that country. Even now, the full extent of its advantages, though easily intelligible, are not yet comprehended by the people in general, of any nation, unless we except the only one that has yet adopted the whole system. One cause for this slow progress is to be found in our early attachment to numbers that admit of repeated bisections, without producing fractional remainders; such as 8, 12, 16, and the like.

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On the decimal plan, the use of the convenient expressions of $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$, *may be* continued at pleasure, while all the rest of the inconvenient fractions, whether proper, improper, compound or complex, will be rendered totally useless.

Those numbers that increase by twelves, or by some submultiple of twelve, such as sixpences, shillings, dozens and grosses, are on the *duodecimal* scale; while numbers increasing by tens, as mills, cents, dimes, and dollars, are on the DECIMAL scale. These two scales are inconsistent with each other, and can never harmoniously work together.

In order to secure the greatest amount of convenience and utility in calculations connected with commerce, it is self-evident that THE SCALE OF NOTATION, the SCALE OF MONEY, and THAT OF WEIGHT AND MEASURE, SHOULD BE BASED UPON ONE COMMON PRINCIPLE. OUR MONEY SCALE, like the SCALE OF NOTATION, IS ALREADY on the DECIMAL PLAN, and the last named is so firmly established throughout the civilized world as to be unalterable, and all that remains for us, is to make the scales of weight and measure harmonize with it.

The commercial tables now in use, are arranged according to no fixed plan; they are simply lists of equations, following each other in no regular order. One-third of them are composed of odd numbers, and five are encumbered with fractions. These tables are derived from standard units of measure, fixed, as to their quantities, by law. We propose to take certain of these standards, and by decimal multiplication and division, place the new tables of weight and measure in conformity to the decimal scale of notation.

The standards now established by law, will remain unchanged in all cases except one—that is the gallon; we require that this measure should contain exactly 10 pounds avoirdupois of distilled water.

Now, the United States wine gallon is too small, and the ale gallon a trifle too large; but the gallon derived from the State bushel of New York will just suit us. That bushel must contain 80 pounds of distilled water, and the gallon (4 quarts) being $\frac{1}{8}$ of a bushel, will of course contain ten pounds, as alluded to before.

We proceed to consider the measure of

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WEIGHT.

We have three different orders of weight in full operation, viz.:—Troy, Avoirdupois, and Apothecaries' weight.

The weight of the various pounds in Troy grains, stands thus :

The Troy and Apothecaries' pound, 5760 grains.
The pound Avoirdupois,........ 7000 "

We propose to supersede these three orders of weight, by the establishment of one ; the unit of which is the standard pound *avoirdupois.* The scale of weights is as follows :

10 grains ....=............. 1 scruple.
10 scruples............=............. 1 dram.
10 drams...............=............. 1 ounce.
10 ounces..............=............. 1 pound.
10 pounds.............=. .... 1 stone.
10 stones..............=............. 1 hund. wt.
10 hundred weights.... .=............. 1 ton.

The order of this scale is regulated by the pound, which with the hundred weight, (100 pounds), will remain unchanged.

Let it be noticed *that the figures used to express any quantity show the number of any denomination contained in that quantity*, thus : 123,456 drams may be read, 1 ton, 2 hundred weights 3 stones, 4 pounds, 5 ounces 6 drams, or 12 cwts., 3 stones, 4 lbs., 5 oz., 6 drams ; or 123 stones, 4 lbs., 5 oz., 6 drams ; or 1,234 lbs., 5 oz., 6 drams ; or 12,345 ounces, 6 drams.

By means of this arrangement, "Reduction" will become a nullity.

It will be observed that any article sold at 4c. per dram, will be 4 dimes per ounce, 4 dollars per pound, 4 eagles per stone, 40 eagles per cwt., and 400 eagles per ton. In fact, the price of one term gives all the others throughout the scale.

The first impression of the tradesman upon looking at these scales may be that confusion will be introduced into his ware-

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house, and loss entailed by the *alteration* of quantities. Such a conclusion will soon disappear when he understands that the unit of weight, the pound, remains the same, so that sugar for which he is asking 8c. is still 8c per pound, the half-pound 4c., and the quarter 2c.

Take a more expensive article, *at* $2 per pound, and if an ounce is required, it will be 2 dimes, the new ounce being the 10th part of a pound. Whether the ounce is larger or smaller, is of no consequence to the buyer or seller, since it being the 10th of the pound, (which is *invariable*), it is also the 10th of the price of the pound.

On this scale the grain will be the 10,000th part of a pound, instead of the 7000th, which is admitted to be an improvement.

The ton will be fixed at 1000 pounds, instead of fluctuating between 2000 and 2240 pounds, as at present.

We now turn our attention to

MEASURES OF CAPACITY.

We have at present four distinct orders of this measure, viz.: Wine, Beer, Dry, and Apothecaries' measures. We propose to merge them all into this scale.

10 grains..............=.............. 1 scruple.
10 scruples..............=.............. 1 dram.
10 drams..............=.............. 1 gill.
10 gills..............=.............. 1 pint.
10 pints..............=.............. 1 gallon.
10 gallons..............=.............. 1 anker.
10 ankers..............=.............. 1 tun.

Here the gallon is the standard unit; it corresponds with the gallon dry measure of the State of New York, and differs but little from the ale gallon now used. The pint on this scale is as nearly as possible equal to the pint wine measure.

A beautiful uniformity would thus subsist between the scale of weight and that of measure, from the fact of milk, vinegar, wine, refined oils, together with most other fluids in common use, *being of nearly the same weight as water*. The correspondence between the scale of weight and that of measure stands thus:

1 grain in weight......=...... 1 grain in measure.
1 scruple " ......=...... 1 scruple "
1 dram " ......=...... 1 dram "
1 ounce " ......=...... 1 gill "
1 pound " ......=...... 1 pint "
1 stone " ......=...... 1 gallon "
1 hundred weight......=...... 1 anker "
1 ton " ......=...... 1 tun "

This result is one important step towards the attainment or uniformity where *one scale of weight*, of which the pound is the standard, answers for all purposes of weight; *and one scale of capacity measure*, where the gallon is the standard, answers all purposes of measure.

We have just seen how weight and measure coincide; we now proceed to show how these again harmonize with price.

For this purpose we choose a costly article—otto of roses, for instance—

WEIGHT.		MEASURE.		PRICE.
Grain........	=....	grain....	=..........	5 mills.
Scruple	=....	scruple...	=..........	5 cents.
Dram.........	=....	dram	=.... ...	5 dimes.
Ounce	=....	gill	=..........	5 dollars.
Pound	=....	pint	=..........	5 eagles.
Stone	=....	gallon ...	=.........	50 eagles.
Hundred weight	=....	anker....	=......	500 eagles.
Ton...........	=....	tun......	=......	5000 eagles.

Thus it clearly appears that if the *price* of any term on the scale of measure is known, not only is the price of every other term known, *but its weight and measure also.*

The convenience and utility flowing from this happy connection between weight, measure and price will be experienced in a thousand different ways that we cannot now illustrate; yet we may allude to the content of casks being ascertained with greater accuracy by weight than by gauging.

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The three upper terms on the scales of both weight and measure, representing the same quantities under the same names, will be found generally convenient for those engaged in business requiring attenuated weights.

The term "stone," on the scale of weight, is not yet obsolete here. A stone of wire is 14 lbs., and the stone is also used for the expression of weight for many other articles.

The term "anker" is known only as a measure for brandy, and it is as it always has been, ten gallons.

It will readily be acknowledged that the decimal system is consistent with the decimal fractions: thus, the $\frac{1}{4}$ lb. is expressed decimally .25, and these figures appear again in the integers 25 drams or 2 oz. 5 drams. Similarly, $\frac{1}{2}$ lb. is decimally .5 and also 5 oz. Again, $\frac{3}{4}$ lb. is decimally .75 and also 75 drams or 7 oz. 5 drams, and all these peculiarities above apply to every scale in the system.

Our present table of dry measure has led to the inconvenience of measuring grain, potatoes, turnips, maize, &c., a mode as unjust, as irrational, and one which must soon give way before the intelligence of the people. This principle is admitted in this and other States, and the law determines the number of pounds that shall constitute a bushel of grain. But while thus giving credit to a single move in the right direction, it will be apparent that without a uniform scale, each State will fix its own weight to the bushel—soon forming a table beyond the effort of ordinary memory, and leading to inextricable confusion.

Numberless experiments might be adduced to show that weight is the most equitable mode of estimating nine-tenths of the articles sold in the market; but the roughest and most valueless articles ought to be sold by measure.

SCALE OF LINEAR EXTENSION.

10 seconds .... = ... 1 inch.
10 inches .... = ... 1 foot.
10 feet .... = ... 1 rod.

Here the "foot" is the invariable standard unit, from which the other terms are calculated. Our purpose requires that the foot be divided into ten inches, and these, again into a subdecuple series, to any degree of minuteness. Square and cubic measure flow as a matter of course, from the scale of length; here duodecimals will become extinct, as their place will be supplied by simple multiplication.

LAND SCALE.

10 square links........=... ....1 square staff.
10 " staffs........=............1 " reed.
10 " reeds........=............1 " plat.
10 " plats........=............1 " chain.
10 " chains.......=............1 " acre.

Here the acre is the invariable unit, which together with the link and chain, will remain unaltered.

The decimal division of the acre requires 5 equations, commencing with the link, and to increase the difficulty, the terms "perch and rood" found on the table, are not available. Forced therefore, to seek for three new terms, we first choose the *offset staff*, an instrument of 10 links in length, just the required dimensions, and being well known to surveyors, the "staff" is new only in application.

We now require a term for the 1000th part of an acre; this we call a "reed."

The next is for 100th part of an acre, or nearly 7 yards square; for this we think "plat" the most suitable.

Here we feel ourselves compelled to deviate from our practice of adhering to the present nomenclature, from the wide difference of the quantities, the perch is the 160th, and the rood the 4th part of an acre; and these would be very unsuitable terms to represent the hundreth and the thousandth parts of the same quantity.

SCALE OF NUMERAL ACCOUNT.

10 units..................=............1 decade.
10 decades.................=............1 hundred.
10 hundreds..............=............1 thousand.

This scale will be of more service in commerce than time will permit us to show. It will supersede the long catalogue of unconnected quantities, such as dozens, scores, long-hundreds, &c.

It completes the uniformity of our plan, and is, in fact, the scale of notation condensed, where the terms are marshalled in decimal order, and will prove a means for calculating that numerous class of articles, that are sold by the medium of counting.

The place of the dozen will be well supplied by the decade, and that of the gross by the hundred, while the upper part of the scale will be admirably adapted to facilitate calculations in the wholesale department of those businesses that are conducted on the numeral principle; but the full value of the scale will not appear until the system is fairly introduced.

In our zeal for the extension of the decimal system, we hope we have sufficient prudence to know where to stop. Nothing will be gained by extending our operations a step further in this direction. We cannot well decimalize the mile, and if we could, we may well doubt the wisdom of such a proceeding, since nothing is bought or sold by the mile, except the single article of land, and that but seldom, and even here, the parties engaged in the transfer are sufficiently capable of perfecting their own calculations. Our plan embraces the whole extent of commerce, and will answer all its purposes. Neither the buyer nor the seller need trouble himself about the relative proportion of the old and new qantities: each lower division on every scale is exactly the tenth of its next superior, and the scale of money harmonizes with each and every scale of quantity. The law of increase and decrease acts in union with them all; and this is one of the beauties of a complete decimal system.

As to public information, *this* measure will occupy the same position as any other legal enactment, and there is no danger of its being established by law, previously to the public mind being prepared for the event, by information obtained through the medium of the press. But the sanction of Congress must be secured, before any steps can be taken with sensible effect. Our people are sufficiently intelligent to carry out the projects, and it will appear so, when their minds are aroused to contemplate its benefits. The novelty will cease shortly after the system has been once fairly introduced. It will then be seen that instead of creating confusion, it will remove the confusion already existing; and the wonder will then be, how we could, *so long*, have endured the present cumbrous and unwieldly system of transacting any department of business.

In fact, conviction is forced home to every thinking mind that a reform is needed, and a decimal system imperatively demanded ; but as no plan had ever been presented to the public, although the principle upon which some such plan should be promulgated, has been discussed. Hence the only general one in use,—that of France, is seized upon for its availability, rather than its adaptability to our commerce. So much for the friends of the system.

We now proceed to notice some of the most prominent objections that have been advanced against the proposed system.

The most serious one assumes the form of a caution to approach the subject with great care, since it was obtained by the only nation in the world in which it is now in operation, at the enormous cost of forty-five years of confusion.

All this we fully admit, and so far from shrinking from the examination of this objection, we rather desire that the history of the establishment of the metrical or decimal system of France should be universally known. This wish arises from a conviction that the practicability of our plan would by this means appear more conspicuously.

In the first place, the metrical system was devised by philosophers and gentlemen, without the slightest regard to the interests or conveniences of commerce, or to the transactions of common life. After they had obtained, at the cost of much labor and expense, their grand standard unit of quantity, the metre, which they derived from the earth's meridian, they formed all their other units and divisions, whether of weight or measure, by a decimal multiplication or division of some portion of its length. In order to effect this with greater facility, they set aside all the weights and measures of every kind then in use, regardless of all consequences, so that they might proceed without being embarrassed with existing quantities ; they seem never to have discovered their mistake until the time arrived, when their system was to be placed in actual operation, and then it was found to be impracticable, from the positive inability of the people to calculate the relative value of the new and old quantities, from the want of convenient data.

Their next error was to describe these new quantities by names that formed no part of the vernacular language, and such as were intelligible only to those who were acquainted with Latin and Greek: this was a grand mistake, since it imposed not only the memory of a new vocabulary of long noisy words, but also the recollection of the exact position each new name was designed to occupy on the scale to which it was appointed. It requires but little reflection to perceive that these two false steps were quite sufficient of themselves to have rendered the system impracticable, even if designed for the best informed people on the face of the earth.

Combined with these, there were other impediments. In their zeal to secure all the benefits the system would yield, its early supporters seem to have mistaken the objects of its legitimate application. Once in motion, they knew not where to stop. Among other other things they attempted a new mensuration for the circle; and arranged the days of the month, the hours of the day, and the minutes and the lower divisions of the hour, in decimal order. In dividing the days of the month, the infidel section of the reformers aimed a blow at the Christian religion, since it implied the necessity of abrogating the Sunday, by appointing one day in *ten* for religious observances in the place of one day in seven. This movement had the effect of bringing the whole system into great disrepute. To this list of misadventures we might also add others of a political character, to which our limits forbid us doing more than simply to hint at their existence.

All these elements of strife, and every other, have been carefully guarded against in the formation of the plan to which we solicit attention, and so complete is the provision, that it appears impossible that the least confusion should arise from these causes. In the first place, our standards will be preserved, and the nomenclature retained in the exact order in which it now stands.

The difference in the magnitude of those quantities, that will be subjected to the proposed alterations, is trivial and unimportant; whilst at the same time our plan is better calculated to confirm, more fully than to subvert, those leading units that long custom and our records have established in the minds of the people of this country as eternal quantities.

It will also be conceded that this reform interferes with the rights of no religious denomination; and while it challenges the support of every patriot, it stands independent of either creed or party.

To all these advantages in our favor, we may add that of the different aspects of the times, as regards the introduction of the two projects; here the contrast is strikingly evident. Surely no period could be so inauspicious for placing in operation a difficult and delicate experiment like this before an ignorant and unstable people, for such were the French at that period, though these defects were the result of their misfortunes rather than their faults. They had indeed burst the bond of a stupendous system of tyranny, but the effort was succeeded by a horrible revolution, from the effects of which they were but just then emerging, with all the distracted feelings and deranged circumstances incident to such a position; while here peace and commercial prosperity may be said to join hands with domestic quietude and comfort; obedience to the laws is cheerfully yielded, and we rejoice in the blessings of wholesome institutions, and as large a share of liberty as is consistent with social security. The early misfortunes that attended the introduction of the metrical system, when held forth as a warning, here lose their force. We are every way prepared for the period of transition, the ground has been submitted to a careful inspection, and with the sanction of the legislature and the assistance of the public press, we could place the country in a favorable position for entering upon this reform in the circuit of a few months.

The next order of objectors who claim our attention are those who advocate the application of new names to indicate new quantities wherever such occur. We should recommend all who entertain these views, to consider that while it is easy to call a new class of names into existence, all history proves it to be one of the most difficult of legislative achievements to establish their use.

Besides, the new names in this case must indicate the exact position of their respective quantities on the scales to which they belong; and even then they would fail to secure popular favor if they proved less intelligible than the old ones. After all, we are disposed to believe that whatever might be their

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merit, they would all be substituted by the convenient monosylable *new* as the *new* gill, the *new ounce*, and the like ; this would continue till the novelty ceased, and the prefix having served its purpose, would gradually fall into disuse. We pass by other objections which our time forbids us to notice, but we know of none that cannot be satisfactorily answered ; our scheme has undergone a severe examination in detail, and we are fully prepared to submit to the most vigorous inquisition.

We now proceed to take a rapid glance at a few of the numerous benefits that the establishment of this system will confer upon society.

In the first place, the cause of morality will be promoted by a clearer definition of the line of demarcation between *meum* and *tuum*. This will be effected by one single scale of Weight, Measure, and Number, each, for its respective purpose, in the place of the disorderly multitude that now facilitate fraud and perplex both buyers and sellers.

But perhaps the most abundant harvest of perennial utility will be found in the department of practical education. Here the advantages are so self-evident as to carry conviction to every mind. PURE ARITHMETIC IS A SCIENCE OF SIMPLICITY, but our ancestors, from a misconception of its theory, have made it repulsively perplexing both to teacher and pupil. By means of our plan, a saving of seventh-tenths of the time, labor and sorrow now endured in the school days of youth, will certainly be effected in the calculations of commerce. Time is an important element, at the period of life when the requirements of the age demand that the attention of youth should be directed to so many branches of learning that prudence is puzzled in fixing the limit.

The benefits resulting from this reform to commerce and the daily transactions of life, will prove incalculably greater than its most sanguine admirers anticipate ; yet consisting as they do, of numberless conveniences of a common place character, we despair of doing justice to this part of the subject by our comments. When the system is fairly placed in operation, they will soon be perceived by both buyer and seller, even in spite of themselves, at well nigh every purchase, and all classes of society, and every individual of every class will participate in the promised advantages. By means of preparing the way for the introduction of Logarithms into commercial calculations, and facilitating ingenious inventions, the decimal reform will prove a labor-saving machine of the first magnitude; and as regards the saving of time, we hope soon to lay before the public a collection of facts that will excite astonishment.

It will be conceded that no reform of equal extent and magnitude, has ever been effected, which required so small a sacrifice of public and private convenience at the period of its introduction. We disturb no existing institutions; we ruin no branch of business; we jeopardize the interests of no class of citizens; we interfere with no public records; we introduce no barbarous words; we demand no changes but what may be effected with ease, and all the required alterations will be decided improvements. Hence the arguments that are used against the French metrical system cannot apply here, for while we avoid the objectionable points of that scheme, a fair comparison will show that our plan possesses several advantages of which theirs is deficient.

In the first place, it will be seen that by deriving all their quantities from the metre, they have imposed upon their people many weights and measures of the most inconvenient magnitude. They have also overlooked the wide field of utility that will be opened to commerce by the union of Weight, Measure, and Price. And lastly, their system is incomplete for the want of a scale of number, decimally arranged—with names expressive of quantity, which will, among other advantages, be of immense convenience in the sales of those commodities that are effected by counting, and serve to abolish the dozen, score, gross, &c.

Since the deficiencies of the French system will for ever prevent it from becoming universal, it has been observed by competent authorities, that in the event of the plan we advocate being adopted here, Great Britain will be compelled to follow in our steps, as soon as she has secured a decimal currency, if it be only from inability to take any other course with equal advantage. Grant the probability of such a sequence, and the fact of two great powers conducting their commerce on the same principle, will exert a potential influence on other nations, which may in course of time result in this our American plan becoming universal.

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Your committee are of opinion that no sound reason can be advanced against the early adoption of this plan. Every part and particle of which has been considered and reconsidered, and the whole so thoroughly winnowed by the fan of controversy, that nothing but the golden grain is now remaining. From the first day of its actual introduction, each individual of our thirty millions, as well as all posterity, will participate in the benefits and convenience it will surely confer.

Every part of Europe is alive to this reformation. Societies have been formed in various countries for its establishment; and from the fact of our currency being formed on the decimal principle, all eyes are turned upon us, with the full expectation that we shall take the lead in this noble enterprise. Should we accomplish this useful object, we shall gain the respect of the present generation, and all posterity will exultingly refer to our elevated position, on the scale of national intelligence; but, on the other hand, should we miss this opportunity, we shall lose in the world's estimation; and the money scale, now our pride, will serve as a single and humiliating proof of our intellectual inferiority to the age of our fathers.

In short, we must reconcile ourselves either to lead, or to follow, for the time is at hand when a stationary attitude will expose us, as a nation, to well deserved censure. In the name of patriotism, we appeal to our fellow-citizens, and conjure them not to defer the employment of every constitutional means within the scope of their influence to effect this reform. It is an enterprise suited to the times, and one that is well calculated to advance the honor and dignity of this country, and maintain its character in its progress towards intellectual and commercial eminence; and let it be remembered, that the benefits resulting from its establishment will endure throughout endless generations.

Marshall Lefferts, *Chairman.*

Archibald Russel, } *Com. Am. Geographical*
T. F. Harrison, } *and Statistical Society.*

George W. Blunt, } *Com. Chamber of Com-*
Authur Leary, } *merce.*